

PENDING CLAIMS AS AMENDED

*Please amend the claims as follows:*

1. (Currently Amended) A computer readable media embodying instructions executable by a processor to perform a method for providing packet data services, the method comprising:

establishing a single Point-to-Point Protocol (PPP) layer for communication between a mobile station and a wireless network;

sending and receiving data through said single PPP layer using a first Radio Link Protocol (RLP) layer characterized by a first grade of service; ~~and~~

sending and receiving data through said single PPP layer using a second RLP layer characterized by a second grade of service, wherein the first grade of service is different from the second grade of service;

establishing a single High-level Data Link Control (HDLC) layer between said PPP layer and said first and second RLP layers; and

establishing a deframer layer between said HDLC layer and said first RLP layer, said deframer layer configured to provide whole HDLC frames to said HDLC layer.

2. (Original) The computer readable media of claim 1, the method further comprising:  
establishing a first buffer having a first buffer size based on the first grade of service;  
and

establishing a second buffer having a second buffer size based on the second grade of service.

3. (Original) The computer readable media of claim 2, wherein the first buffer includes retransmission and resequencing buffers, and the second buffer does not include retransmission and resequencing buffers.

4. (Cancelled)

5. (Cancelled)

6. (Currently Amended) A computer readable media embodying instructions executable by a processor to perform a method for providing packet data services ~~The computer readable media of claim 1~~, the method ~~further~~ comprising:

establishing a single Point-to-Point Protocol (PPP) layer for communication between a mobile station and a wireless network;

sending and receiving data through said single PPP layer using a first Radio Link Protocol (RLP) layer characterized by a first grade of service;

sending and receiving data through said single PPP layer using a second RLP layer characterized by a second grade of service, wherein the first grade of service is different from the second grade of service;

establishing a first High-level Data Link Control (HDLC) layer, ~~disposed~~ between said PPP layer and said first RLP layer; and

establishing a second High-level Data Link Control (HDLC) layer, ~~disposed~~ between said PPP layer and said second RLP layer.

7. (Currently Amended) A mobile station apparatus, comprising a processor and a memory, wherein the memory embodies instructions executable by the processor to perform a method for providing packet data services, the method comprising:

establishing a single Point-to-Point Protocol (PPP) layer for the mobile station;

sending and receiving data through said single PPP layer using at least two Radio Link Protocol (RLP) layers characterized by at least two different grades of service;

establishing a single High-level Data Link Control (HDLC) layer between said PPP layer and said at least two RLP layers; and

establishing a deframer layer between said HDLC layer and one of said at least two RLP layers, said deframer layer configured to provide whole HDLC frames to said HDLC layer.

8. (Currently Amended) The mobile station apparatus of claim 7, further comprising a wireless modem for modulating RLP frames generated by the first and second RLP layers.

9. (Currently Amended) The mobile station apparatus of claim 7, further comprising a CDMA wireless modem for modulating RLP frames generated by the first and second RLP layers.
10. (Cancelled)
11. (Original) The mobile station apparatus of claim 7, wherein the different grades of service include a reliable grade of service and a low latency grade of service.
12. (Currently Amended) The mobile station apparatus of claim 7, wherein said method further comprises establishing a buffer for each of said at least two RLP layers, and wherein the size of each buffer is based on the grade of service of the corresponding RLP layer.
13. (Original) The mobile station apparatus of claim 12, wherein each buffer includes retransmission and resequencing buffers only if the corresponding RLP layer is reliable.
14. (Cancelled)
15. (Currently Amended) A packet control function (PCF) apparatus, comprising a processor and a memory, wherein the memory embodies instructions executable by the processor to perform a method comprising:
- establishing a first Radio Link Protocol (RLP) layer characterized by a first grade of service;
  - establishing a second RLP layer characterized by a second grade of service different from the first grade of service;
  - receiving data from a mobile station through the first RLP layer; ~~and~~
  - receiving data from the mobile station through the second RLP layer;
  - deframing data received through the first RLP layer to identify a first High-level Data Link Control (HDLC) frame;

deframing data received through the second RLP layer to identify a second HDLC frame;

providing the first HDLC frame to a Packet Data Serving Node (PDSN); and  
providing the second HDLC frame to the PDSN.

16. (Cancelled)

17. (Currently Amended) A packet control function (PCF) apparatus, comprising a processor and a memory, wherein the memory embodies instructions executable by the processor to perform a ~~The PCF apparatus of claim 15, wherein the method further comprises~~  
comprising:

establishing a first Radio Link Protocol (RLP) layer characterized by a first grade of service;

establishing a second RLP layer characterized by a second grade of service different from the first grade of service;

receiving data through the first RLP layer;

receiving data through the second RLP layer;

providing data received through the first RLP layer to a first High-level Data Link Control (HDLC) layer in a Packet Data Serving Node (PDSN); and

providing data received through the second RLP layer to a second HDLC layer in the PDSN.

18. (Currently Amended) A wireless network apparatus comprising:

a Packet Control Function (PCF) for establishing a first Radio Link Protocol (RLP) layer characterized by a first grade of service, establishing a second RLP layer characterized by a second grade of service different from the first grade of service, receiving data ~~from a mobile station~~ through the first RLP layer, ~~and receiving data from the mobile station~~ through the second RLP layer, providing data received through the first RLP layer to a first High-level Data Link Control (HDLC) layer in a Packet Data Serving Node (PDSN), and providing data received through the second RLP layer to a second HDLC layer in the PDSN; ~~and~~

~~a Packet Data Serving Node (PDSN) for extracting IP packets from data received through the first and second RLP layers, and providing the IP packets to an internet.~~

19. (Original) A wireless network apparatus comprising:

a Packet Data Serving Node (PDSN) for extracting IP packets from data received through a single High-level Data Link Control (HDLC) layer associated with a single Point-to-Point Protocol (PPP) connection to a mobile station; and

a Packet Control Function (PCF) for establishing a first Radio Link Protocol (RLP) layer characterized by a first grade of service, establishing a second RLP layer characterized by a second grade of service different from the first grade of service, deframing data received through the first RLP layer to identify a first HDLC frame, deframing data received through the second RLP layer to identify a second HDLC frame, providing the first HDLC frame to the single HDLC layer, and after providing the first HDLC frame to the single HDLC layer, providing the second HDLC frame to the single HDLC layer.

20. (Currently Amended) A method for providing packet data services, comprising:

establishing a single Point-to-Point Protocol (PPP) layer for communication between a mobile station and a wireless network;

sending and receiving data through said single PPP layer using at least two Radio Link Protocol (RLP) layers characterized by at least two different grades of service;

establishing a single High-level Data Link Control (HDLC) layer between said PPP layer and said at least two RLP layers; and

establishing a deframer layer between said HDLC layer and said first RLP layer, said deframer layer configured to provide whole HDLC frames to said HDLC layer.

21. (Original) The method of claim 20, the method further comprising establishing a buffer for each of said at least two RLP layers, wherein the size of each buffer is based on the grade of service of the corresponding RLP layer.

22. (Cancelled)

23. (Cancelled)

24. (Currently Amended) ~~The method of claim 20, further comprising establishing at least two High-level Data Link Control (HDLC) layers, wherein one HDLC layer is disposed between said PPP layer and each of said at least two RLP layers.~~ A method for providing packet data services, comprising:

establishing a single Point-to-Point Protocol (PPP) layer for communication between a mobile station and a wireless network;

sending and receiving data through said single PPP layer using a first Radio Link Protocol (RLP) layer characterized by a first grade of service;

sending and receiving data through said single PPP layer using a second RLP layer characterized by a second grade of service, wherein the first grade of service is different from the second grade of service;

establishing a first High-level Data Link Control (HDLC) layer between said PPP layer and said first RLP layer; and

establishing a second High-level Data Link Control (HDLC) layer between said PPP layer and said second RLP layer.

25. (Currently Amended) A mobile station apparatus, comprising a processor and a memory, wherein the memory embodies instructions executable by the processor to perform a method for providing packet data services, the method comprising:

~~at a mobile station,~~ establishing a single Point-to-Point Protocol (PPP) layer for communication between a the mobile station and a wireless network;

~~at the mobile station,~~ using the single PPP layer to encapsulate an IP packet associated with a delay-sensitive application to generate a first PPP packet;

~~at the mobile station,~~ using the single PPP layer to encapsulate an IP packet associated with a non-delay-sensitive application to generate a second PPP packet;

~~at the mobile station,~~ sending the first PPP packet through a low latency Radio Link Protocol (RLP) layer to the wireless network; and

~~at the mobile station,~~ sending the second PPP packet through a reliable RLP layer to the wireless network;

establishing a single High-level Data Link Control (HDLC) layer between the single PPP layer and the low latency and reliable RLP layers; and

establishing a deframer layer between said HDLC layer and one of the low latency and reliable RLP layers, the deframer layer configured to provide whole HDLC frames to said HDLC layer.

26. (Currently Amended) The mobile station apparatus method of claim 25, the method further comprising:

~~at the mobile station,~~ converting the first PPP packet into a first High-level Data Link Control (HDLC) frame using ~~an~~ the HDLC layer ~~in the mobile station~~ prior to sending the first PPP packet; and

~~at the mobile station,~~ converting the second PPP packet into a second HDLC frame using the HDLC layer ~~in the mobile station~~ prior to sending the second PPP packet.

27. (Currently Amended) A packet control function (PCF) apparatus, comprising a processor and a memory, wherein the memory embodies instructions executable by the processor to perform a method for providing packet data services, the method comprising:

~~in a packet control function (PCF),~~ receiving a first set of data bytes ~~from a mobile station~~ through a low latency Radio Link Protocol (RLP) layer;

~~in the PCF,~~ receiving a second set of data bytes ~~from the mobile station~~ through a reliable RLP layer;

~~— providing the first set of data bytes to a Packet Data Serving Node (PDSN) through a Point to Point Protocol (PPP) connection with the PDSN; and~~

~~providing the second set of data bytes to the PDSN through the PPP connection;~~

deframing the data received through the low latency RLP layer to identify a first High-level Data Link Control (HDLC) frame;

deframing the data received through the reliable RLP layer to identify a second HDLC frame;

providing the first HDLC frame to a Packet Data Serving Node (PDSN); and

providing the second HDLC frame to the PDSN.

28. (Currently Amended) The packet control function (PCF) apparatus method of claim 27, further comprising:

prior to providing the first set of data bytes to the PPP layer, using one or more High-level Data Link Control (HDLC) flag characters within the first set of data bytes to identify a ~~third set of data bytes within the first set of data bytes corresponding to~~ at least one complete HDLC frame; and

providing the at least one complete HDLC frame ~~third set of data bytes consecutively~~ to the PDSN through the PPP connection.

29. (Currently Amended) The packet control function (PCF) apparatus method of claim 27, further comprising:

prior to providing the first set of data bytes to the PPP layer, using one or more High-level Data Link Control (HDLC) flag characters within the second set of data bytes to identify a ~~third set of data bytes within the second set of data bytes corresponding to~~ at least one complete HDLC frame; and

providing the at least one complete HDLC frame ~~third set of data bytes consecutively~~ to the PDSN through the PPP connection.

30. (Currently Amended) The packet control function (PCF) apparatus method of claim 27 further comprising:

providing the first set of data bytes to ~~the~~ a Point-to-Point (PPP) layer through a first High-level Data Link Control (HDLC) connection with the PDSN; and

providing the second data bytes to the PPP layer through a second HDLC connection with the PDSN.

31. (New) An apparatus comprising:

a Packet Control Function (PCF) configured to establish a first Radio Link Protocol (RLP) layer characterized by a first grade of service, to establish a second RLP layer characterized by a second grade of service different from the first grade of service, to deframe data received through the first RLP layer to identify a first HDLC frame, to deframe data



received through the second RLP layer to identify a second HDLC frame, to provide the first HDLC frame to a single High-level Data Link Control (HDLC) layer associated with a single Point-to-Point Protocol (PPP) connection to a mobile station, and after providing the first HDLC frame to the single HDLC layer, to provide the second HDLC frame to the single HDLC layer.

32. (New) The apparatus of claim 31 further comprising a Packet Data Serving Node (PDSN), configured to extract IP packets from data received through the single HDLC layer.

33. (New) The wireless network apparatus of claim 18 further comprising the Packet Data Serving Node (PDSN).